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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/716,885      | 11/18/2003  | Minoru Kumagai       | 03699/LH            | 8690             |

1933 7590 10/17/2007  
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| EXAMINER |
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LIN, JAMES

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| ART UNIT | PAPER NUMBER |
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1792

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| MAIL DATE | DELIVERY MODE |
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10/17/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                       |  |
|------------------------------|--------------------------------------|---------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/716,885 | <b>Applicant(s)</b><br>KUMAGAI ET AL. |  |
|                              | <b>Examiner</b><br>Jimmy Lin         | <b>Art Unit</b><br>1792               |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 9-12, 14, 16-19, 21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-12, 14, 16-19, 21 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9-10, 14, 16, 18, and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Rijn et al. (WO 2002/43937) in view of Kiguchi et al. (U.S. Publication No. 2003/0024103).

Van Rijn discloses a method of making an electroluminescent (EL) display having an EL layer (i.e., an optical element) sandwiched between a first and a second electrode (pg. 19, lines 12-28). The EL material can be formed onto the substrate using a micro-printing technique (pg. 19, lines 31-34). The micro-printing method comprises a stamp having ink attracting and ink repelling regions. The stamp is brought into contact with the substrate to transfer the droplet and to form an EL layer (pg. 25, lines 16-24; Fig. 20B). The stamp is interpreted to be the plate as required in the claims.

Van Rijn does not explicitly teach irradiating a light to a part of the wettability changeable layer so as to transform the wettability of the wettability changeable layer. However, Van Rijn does teach that plasma treatments can be used to form hydrophobic and hydrophilic regions (pg. 4, lines 40-42). Such a teaching reasonably suggests to one of ordinary skill in the art that the micro-printing stamp can be patterned into hydrophobic and hydrophilic regions to confine the droplets of ink. One of ordinary skill in the art would have recognized that other methods of forming ink attracting and ink repelling regions would have been operable with predictable results. For example, Kiguchi teaches that it is well known to use a fluoroalkylsilane film to form hydrophilic and hydrophobic patterns. The film becomes hydrophilic when irradiated with UV light. A photocatalyst can be used in the film. [0050]. It would have been obvious to one of ordinary skill in the art at the time of invention to have use a fluoroalkylsilane

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film having a photocatalyst as taught by Kiguchi to form hydrophobic and hydrophilic patterns in the micro-printing stamp of Van Rijn with a reasonable expectation of success.

Claim 10: Van Rijn teaches that the EL material is deposited onto the first electrode.

Claim 14: Van Rijn teaches that the micro-printing technique can comprise the use of three stamps to deposit three different colors (pg. 19, lines 31-32).

3. Claims 11 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Rijn '937 in view of Kiguchi '103 as applied to claim 9 above, and further in view of Kimura et al. (U.S. Publication No. 2002/0075422).

Van Rijn and Kiguchi are discussed above, but do not explicitly teach a partition surrounding the electrodes on the substrate. However, Kimura teaches that it is well known to use a partition to surround the coating position, wherein the coating position can be the electrode, to prevent spreading of the deposited ink ([0138]; Fig. 10). The deposition process of Van Rijn is intended to discharge materials into a desired area while not discharging materials onto undesired areas (Figs. 20A-20C). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used partitions to surround the electrodes of Van Rijn with a reasonable expectation of success. One would have been motivated to do so in order to have further confined the ink droplets of Van Rijn onto the substrate.

Claim 11: Van Rijn does not explicitly teach a wettability changeable layer on the substrate having a lyophilic portion formed on each first electrode section and a liquid repellent portion formed on a portion between the plurality of first electrode sections. However, Kimura teaches that enhancing the lyophilicity of the predetermined deposition positions with respect to the peripheries thereof can improve the precision of patterning while maintaining low costs and high throughput [0057]. The step of enhancing the lyophilicity at the deposition areas can be combined with the step of enhancing the repellency of the peripheries thereof [0058]. Accordingly, the deposition process of Van Rijn is intended to discharge materials into a desired area while not discharging materials onto undesired areas (Figs. 20A-20C). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have enhanced the lyophilicity of the electrode and to have enhanced the liquid repellency of the peripheries thereof on the EL substrate of Van Rijn with a reasonable expectation of success. One would have been

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motivated to do so in order to have further confined the ink droplets of Van Rijn onto the substrate.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Rijn '937 in view of Kiguchi '103 as applied to claim 9 above, and further in view of Hiroki et al. (U.S. Publication No. 2001/0023661).

Van Rijn and Kiguchi are discussed above, but do not explicitly teach that the EL layer can comprise of a charge transport layer and a light-emitting layer. However, Hiroki teaches that the EL layer can be a four-layer structure including charge transport materials and light-emitting materials [0145]. It would have been obvious to one of ordinary skill in the art at the time of invention to have used a four-layer structure for the EL layer of Van Rijn comprising a charge transport layer and a light-emitting layer with a reasonable expectation of success because Hiroki teaches that such EL structures are operable in the art.

5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Rijn '937 in view of Kiguchi '103 as applied to claim 9 above, and further in view of Suda (U.S. Patent No. 6,851,364).

Van Rijn and Kiguchi are discussed above, but do not explicitly teach that the wettability changeable layer has a silazane compound having a fluoroalkyl group. However, Suda teaches that such a compound is capable of having its wettability changed with an exposure to UV light (abstract; col. 19, line 43-col. 20, line 15). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a silazane compound having a fluoroalkyl group in the printing plate of Van Rijn and Kiguchi with a reasonable expectation of success because Suda teaches that hydrophilic and hydrophobic patterns can be formed using such a compound. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

***Double Patenting***

6. Applicant is advised that should claim 18 be found allowable, claim 22 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Response to Arguments***

7. Applicant's arguments filed 9/11/2007 have been fully considered but they are not persuasive.

Applicant argues on pg. 11 that Van Rijn does not disclose a "transforming step of irradiating a light to the wettability changeable layer so as to transform the wettability of the wettability changeable layer". While this is true, Van Rijn does suggest to one of ordinary skill that the micro-printing step can be patterned into hydrophilic and hydrophobic regions such that the ink droplets can be confined. One of ordinary skill in the art would have realized that other methods of forming such patterns would have been operable and would have used the other methods with predictable results. Accordingly, Kiguchi teaches that the wettability of a layer can be changed with exposure to UV light, as discussed above. The rejections have been modified to include Kiguchi in order to account for the claim amendments.

***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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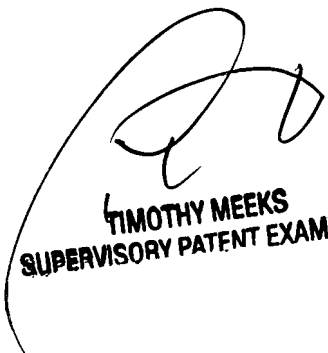
however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is 571-272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JL  
JL



**TIMOTHY MEEKS**  
**SUPERVISORY PATENT EXAMINER**